History in the Computing Curriculum

Appendix A5

1960 to 1969

1960: Working at Rand Corp., Paul Baran develops the packet-switching principle for data communications. (e)

1960: IBM starts delivery on its 1400 series machines. (w)

1960: The Livermore Advance Research Computer (LARC) by Remington Rand is designed for scientific work and uses 60,000 transistors. (e,w)

1960: COBOL is launched for business applications. (a)

1960: Early warning system detects rising moon as incoming missiles. (a)

1960: At Cornell University, Frank Rosenblatt builds a computer -- the Perceptron -- that can learn by trial and error through a neural network. (e)

1960: Standards for Algol 60 are established jointly by American and European computer scientists. (e)

1960: In November, DEC introduces the PDP-1, the first commercial computer with a monitor and keyboard input by a sale to Bolt, Berenak, and Newman. (a,e)

1961: Georg C. Devol patents a robotic device, which Unimation soon markets as the first industrial robot. It is the first used to automate the manufacture of TV picture tubes. (e)

1961: IBM's 7030, or Stretch, computer is completed and runs about 30 times faster than the 704, leading to further exploration of supercomputing. It is delivered to Los Alamos. (e,w)

1961: IBM develops the 7090 computer. (a)

1961 [November]: IBM forms the SPREAD committee that decided to produce the System /360 series. (w)

1961-62: Fernando Corbató at MIT develops the CTSS Time-sharing system, a way for multiple users to share computer time. (a,e)

1962: Max V. Mathews leads a Bell Labs team in developing software that can design, store, and edit synthesized music. (e)

1962: The IBM Stretch operating system uses interrupts, timers supervisory mode, and I/O channels. (a)

1962: Purdue and Stanford Universities establish the first departments of computer science. (a,e,p)

1962: H. Ross Perot founds Electronic Data Systems, which will become the world's largest computer service bureau. (e)

1962: The first video game (Spacewar) is invented by MIT graduate student Steve Russell. It is soon played in computer labs all over the US. (e,p)

1962: Paul Baran and a group at the RAND Corporation begin research into a new communication network. The network model used packet switching, a technique that allows data to be transferred in nonsequential chunks, then reassembled at the destination. (f)

1962: The Telstar communications satellite is launched on July 10 and relays the first transatlantic television pictures. (e)

1962 [December]: Atlas, considered the world's most powerful computer, is inaugurated in England on December 7 at Manchester University. Its advances include virtual memory and pipelined operations. (e,w)

1963: On the basis of an idea of Alan Turing's, Joseph Weizenbaum at MIT develops a "mechanical psychiatrist" called Eliza that appears to possess intelligence. (e)

1963 [January]: Ivan Sutherland introduces Sketchpad, an interactive drawing tool, leading to the consolidation of computer graphics. It was the precursor to computer aided design (CAD), the constraint solver, and "What You See is What You Get (WYSIWYG). (a,e)

1963: The American National Standards Institute accepts ASCII 7-bit code for information exchange. (e)

1963: American Airlines implements provisionally the SABRE airline reservation system through the efforts of Max Hopper. (a)

1963: John McCarthy founds the Artificial Intelligence Laboratory at Stanford University. (p)

1963: At the University of California, Berkeley, Loft Zadeh begins work on fuzzy logic. (e)

1963: The SAGE system for military defense is fully developed at a total project cost of about $8 billion. Many of its technological advances prove beneficial to the entire computer industry. (e)

1964 [April]: IBM announces the System /360 "third generation" line of computers through the efforts of Fred Brooks. The system used binary addressing, cheap feasible time sharing, and virtual memory. (a,e,p,w)

1964: Basic (Beginner's All-Purpose Symbolic Instruction Code) is developed at Dartmouth by John Kemeny and Thomas Kurtz. It spawns many variations. (a,e)

1964: Chip in a DIP (Dual Inline Package) developed. (a)

1964: IBM's seven-year-long Sabre project, allowing travel agents anywhere to make airline reservations, is fully implemented. (e)

1964: With a speed of 9 megaflops, Control Data Corp.'s CDC 6600, designed by Seymour Cray, claims the title of the first commercially successful supercomputer. It runs at 350,000 FLOPS. (a,e)

1964: IBM develops a computer-aided design system. (e)

1964: IBM releases the PL/1 programming language. (a)

1964: Doug Engelbart invents the mouse. (e)

1964: Control Data delivers the first 6600 computer. (w)

1964: Computers in the U.S. grow to 18,000 from 2,500 in 1958. (t)

1964-65: DEC debuts the first minicomputer, the PDP-8, which used transistor circuitry modules. It is the first mass-produced minicomputer. (a,e,t)

1965: Project MAC, a large collaborative time-sharing project at MIT, leads to the Multics time-sharing operating system. (a,e)

1965: J.A. Robinson develops unification, the underpinning of logic programming and important to many of today's programming technologies. (e)

1965: Maurice Wilkes proposes the use of a cache memory on the basis of an idea by Gordon Scarott. (e)

1965: Ivan Sutherland demonstrates the stereo head mounted display with position sensors. It is the first "virtual reality helmet." (a)

1965: Ken Iverson at IBM develops the APL language. (a)

1965: Raj Reddy founds the Robotics Institute at Carnegie-Mellon University. (p)

1965: The University of Pennsylvania grants the first Ph.D. in computer science. (p)

1965: The RCA Spectra 70 series is announced. (w)

1965: ARPA sponsors research into a cooperative network of time-sharing computers. (f)

1965: Theodore Nelson coins the term hypertext, which refers to the text that is linked to graphics, audio, or other text not located in close proximity. (f)

1965: At the University of Belgrade, Rajko Tomovic makes one of the earliest attempts to develop an artificial limb with a sense of touch. (e)

1966: NLS pioneers hypertext, outline processing, and video conferencing through the efforts of Engelbart, English, and Rulifson. (a)

1967: Ole-Johan Dahl and Kristen Nygaard at the Norwegian Computing Centre complete a general purpose version of the language Simula, the first object-oriented language. (e)

1967: Fairchild introduces its 3800 8-bit chip. (e)

1967: CMOS integrated circuits introduced and eventually make up 40% of the global market. (a)

1967: Lawrence G. Roberts publishes the first design paper on the Arpanet, a wide area network of computers developed to link government agencies and universities in the USA. (f)

1967: At Texas Instruments, Jack Kilby, Jerry Merryman, and James Van Tassel invent a four-function handheld calculator. (e)

1967: The software industry is launched when IBM announces that it will no longer bundle software and hardware together. (p)

1967: Donald Knuth writes about algorithms and data structures as entities separate from the programs they are used in. (e)

1967: Niklaus Wirth begins development of Pascal, a structured programming language. (t)

1968: A conference sponsored by the NATO Science Committee addresses the "software crisis" and introduces the term "software engineering." (e)

1968: First Ph.D. in computer science awarded at the University of Pennsylvania. (a)

1968: Edsgar Dijkstra writes about the harmful effects of the goto statement, and interest in structured programming burgeons. (a,e)

1968: The first computers to incorporate integrated circuits -- the B2500 and B3500 -- are introduced by Burroughs. (e)

1968: ACM's Curriculum '68 becomes an influential force in computer science curriculum development. (a)

1968: Doug Engelbart demonstrtes the first mouse. (a)

1968: A Federal Information Processing Standard encourages the use of the six-digit data format (YYMMDD) for information interchange, sowing the seeds of the "Year 2000 Crisis." (e)

1968: Robert Noyce, Andy Grove, and Gordon Moore establish Intel, which is incorporated on July 18. (e)

1968: The Seymour Cray-designed CDC 7600 supercomputer achieves 40-megaflops performance. (e)

1968: The Rand Corp. presents a decentralized communications network concept to ARPA. (e)

1968: The NCR Century series is announced. (w)

1968: Computer Science Corporation becomes the first software company to be listed on the New York Stock Exchange. (t)

1969: The US Department of Defense commissions Arpanet for research networking, and the first four nodes become operational at UCLA, UC Santa Barbara, SRI, and the University of Utah. (e,t)

1969: Bell Labs withdraws from Project MAC, which developed Multics, and begins to develop Unix. (e)

1969: Kenneth Thomson and Dennis Ritchie formulate UNIX at AT&T Bell Labs. (a)

1969: Edgar Codd proposes the relational database model to IBM. (a)

1969: The firs four hosts of the Arpanet become University of California at Los Angeles, University of California at Santa Barbara, University of Utah, and Stanford Research Institute. (f)

1969: ARPA commissions Bolt, Beranek and Newman of Cambridge, Massachusetts, to build the first packet switches called information message processors (IMPs), which were delivered to the four Arpanet hosts. (f)
1969: The Federal Trade Commission files an antitrust suit against IBM. (a)

1969: Donald Knuth writes the first volume of the "Art of Computer Programming." (a)

1969: The RS-232-C standard is introduced to facilitate data exchange between computers and peripherals. (e)